

SUPPLEMENT.

The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

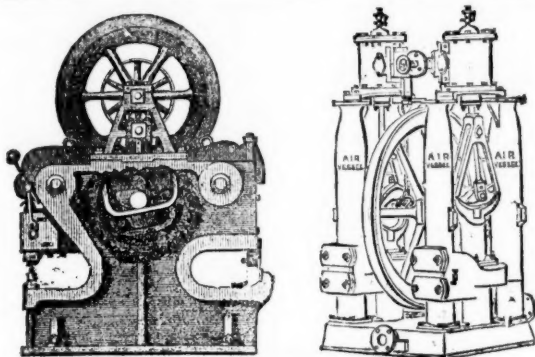
FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2005.—VOL. XLIV.

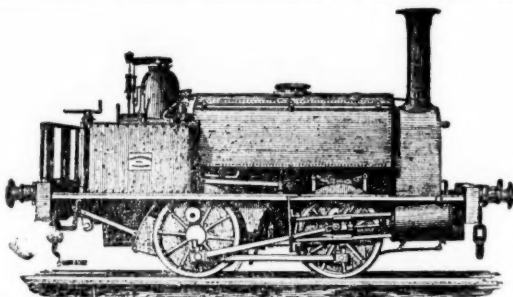
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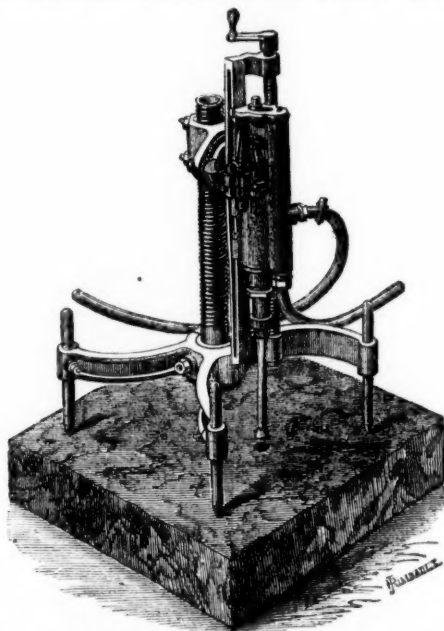
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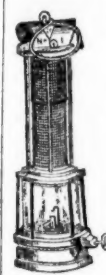
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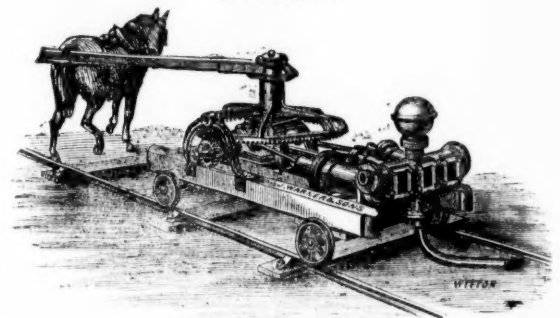
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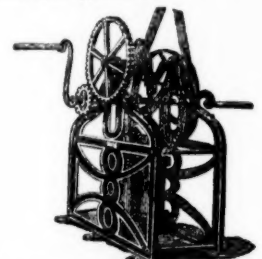
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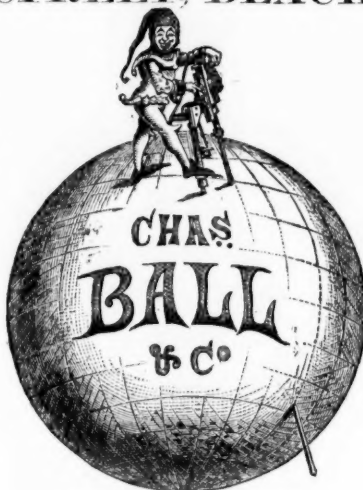
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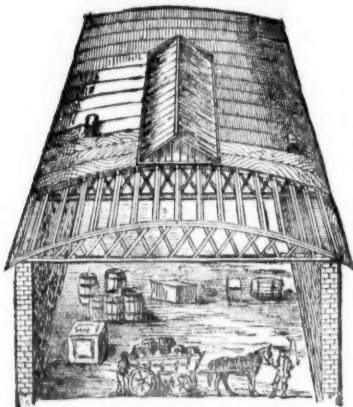
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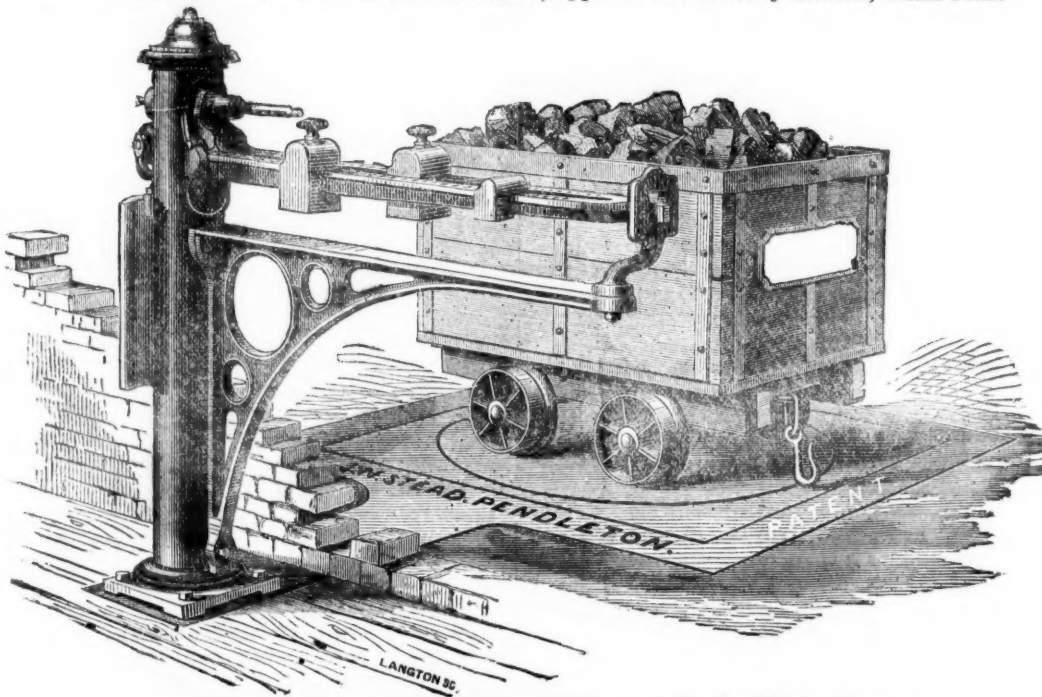
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Mr. Vivian now tells us, that it is always better to "assume a virtue if you Upon the principle, however, that it is always better to "assume a virtue if you it is not, and to be afterwards reproached with a philanthropy not always so prominent in Cornishmen, carried out the preliminary operations at Wheal Frances, with the view of making important discoveries, and also with the ulterior view that in the event of discoveries being made of offering the mine to the company, depending upon the directors for the repayment of the outlay incurred. Such munificence is truly most refreshing, especially as the voluntary emanations of Cornishmen to a body of out-adventurers. But, so far as I have been informed, Mr. Vivian does

not appear to have communicated to the relevant shareholders the course which the expenses have been carrying out the "unusually and mischievously" managers? Can it be possible that even this has been defrayed by our self-appointing managers? If so, we, as shareholders, have indeed abundant reason to be thankful. It is much to be regretted that you did not report the discussion which I understand took place upon this subject, for as the case now stands we are left in conjecture, which may be unjust to those immediately concerned. It is the more to be regretted just now, as new capital is required. A SHAREHOLDER.

Jan. 20.

MINING IN CARDIGANSHIRE—THE ELGAR MINE.

SIR,—For upwards of 30 years I have pursued the *Mining Journal*, and at all times have observed a certain amount of fairness to those connected with mines, and a general support given to everything that is tangible, and with apparent reason of success. Seeing a paragraph in a publication called the "Mining Critic" (which I enclose), induces me to trouble you with a few remarks, and I shall—as on other occasions—feel grateful for an insertion in the *Journal* of my observations thereon. Mr. John Owen begins his eulogy on the Van Mine—Who does not know it? Secondly, and more particularly, the *Mining Critic*, quoting as an authority Captain John Williams, a private agent to Messrs. J. Taylor and Sons, and a more conclusive evidence (he says) than this could not be offered, upon which practical opinion I place great reliance. Now, I ask if Captain Williams' opinion of the Melindur Mine is valuable, why not equally to be relied upon at Elgar? upon which he reports as follows:—

"Captain Williams, a private agent of Messrs. J. Taylor and Sons, says:—The sett is very extensive, being three-quarters of a mile long, and about the same in width, and in close proximity to some of the leading mines of the district. Darren and South Darren lie to the north, and East Darren to the east of north, and Goginan Mine to the south of east. These mines are in full operation, and good profits are being realised. At East Darren dividends have been paid to the amount of between 70,000 and 80,000, and at Goginan the profits given have exceeded this amount. Cwm Erfin Mine, which joins this sett, is immediately to the east, and the lodes of that mine traverse this sett; the productiveness of these lodes is very well known, having paid about 32,000, in profits. In Melindur Valley Mine there are three lodes known to exist, but the principal workings have been on the middle lode. I beg to remark that in the office I saw some large boulders of lead ore, very rich in silver, from 100 to 150 lbs. weight, which were found in excavating the ground for the wheel pits of this mine, and which I believe came from some of the north lodes traversing this sett. The mine is well supplied with water at all seasons of the year from the river in the Melindur Valley, and is sufficient to sink the mine to any considerable depth. Looking at this sett, and taking into consideration as it is by some of the best mines of the district, after 30 years' experience of mining in this county, I can but recommend this as a first-class investment. More conclusive evidence than this could not be offered, coming, as it does, from two men in whose practical opinion I place great reliance. I have seen the ore from the mine, and it is quite equal to the best ore in the district, and from the large amount of silver it evidently contains, I should anticipate it is worth nearly 200 per ton. The shares in both of these mines are, in my opinion, well worth buying, particularly those of the Melindur Valley, as their present low price affords a very large margin for that speculative rise in value so often seen in well-selected property of this kind, and it is quite a good thing, which in places will yield 100 per cent. silver lead ore per fathom, and 4 tons of blende ore per fathom, and on a lode that can be traced for 20 miles—one of the champion lodes of the county."

In a private note he adds, "I have not seen so fine a looking lode for years. Mr. Owen says, 'the prospectus is chiefly occupied with setting forth the merits of one or two adjacent mines, and from these the inference is drawn that the Elgar will prove to be most valuable. Nothing can be more fallacious, as all know too well who have had practical experience.' &c. Where Mr. Owen has had his experience from I neither know nor care. Captain Williams has certainly had experience, and I venture to state that he would not write a willingly false report for all the 'Mining Critic' in the world, yet nothing can be more favourable than his opinion of the Elgar Mine. Captain Williams, of Boscawen Woods, Capt. Francis, Capt. Boundy, Capt. Harrey, and others, have given as their opinion that the mine will become a good one. Who, then, is Mr. Owen's authority? I rather admire than otherwise Mr. Owen's principle, for I have often said to friends of mine that an 'Idem' would be the best paid man in mining, but he must be a clever man to substantiate what he says, otherwise he would fail. None but an honest practical man could do so with impunity. But I may add, without fearing honest contradiction, that the Elgar is a speculation second to none in Cardiganshire, and it is a wicked fabrication to say we wish to borrow the merits of other mines to assist in working this. It has been working at Elgar Mine for 10 years; a cross cut has been driven 120 fms., and a lode 10 ft. wide has been cut into. A level on the course of this lode has been extended from 60 to 70 fms., which in places will yield 100 per cent. silver lead ore per fathom, and 4 tons of blende ore per fathom, and on a lode that can be traced for 20 miles—one of the champion lodes of the county."

For Mr. Owen, therefore, to say that he should advise persons having money not to invest in this, but drawing attention to others, for reasons that can be easily solved, is most unkind; and I here offer to defray the expenses of two of the most unbiassed and practical men in the Principality (Mr. Owen choosing one and I the other) if their reports are not confirmatory with those already in print. As to the 2000, from the description of the work already done it is money spent and paid for. As to the free shares, if the mine does well it is not too much; if bad, nothing can be realised.

Allow me to add that the share list is nearly filled up, and on examination of the books it will be seen that they are chiefly held by local people. In the town of Aberystwyth there are upwards of 2000 shares held by people who know what mining is; but I very much doubt if you can find such local interest in another mining speculation in the country. I should not have noticed Mr. Owen's remarks, or rather not replied to them, but my local friends considered it my duty, as their agent, to do so. I have managed mines, and have paid handsome dividends, but I declare I never was connected with a mine that, in my opinion, and supported by others, is more likely to do well than the Elgar. I shall be sorry if Mr. Owen thinks I write in a bad spirit; it is far from my desire, and I firmly believe (having a deep interest in the welfare of mines and those who lay out money in them) that ere long Mr. Owen will be compelled to include the Elgar in his favourite column of the *Critic*, and not advise those who may be inclined to go into legitimate mining not to invest. JOHN TREVELYAN.

Mess Bangor, Aberystwyth, Jan. 22.

MINING ENTERPRISE—WHY SO DEPRESSED?

SIR,—The depressed condition of the Mine Share Market has been the constant theme of complaint in the *Journal* for so long a time that it may almost be called its normal condition, while the difficulty of floating, as the phrase goes, any new mining company is the common mania of that large class called "company manufacturers." The *Journal* of the 10th inst. in making up mining accounts, as given in the *Journal* of the 10th inst., will in some degree account for the first, and the fact of 40 mines having been withdrawn from the list of dividend mines in 1873 may account for the last.

A remedy for the first would be found had the sufferers sufficient courage to appeal to the law—as in the case of the sufferers at Jersey by the fraud of the bankers' falsified balance-sheets (these escaped, it is true, by a quibble)—but the balance-sheet of East Lovell is too evidently false to allow of that. Surely all purchasers of shares, if belonging to any of the directors or the pursuer of that mine, after the balance rendered on March 31, 1873, showing only 171,000 odd instead of about 1000,000, have an equitable claim against them for any loss they have suffered. If not, there ought to be a law subjecting both promoters and purchasers to punishment when proved to have made a false balance-sheet. Three months' mine costs could not have been unknown—then why not brought into account?

For the second, perhaps the following short account of an attempt to get up a company may open the eyes of some that would be, otherwise, victims, and make the sham company concocters groan deeper. It is founded on fact. Let us call the proposed company the Great L. W., submitted to a gentleman who wished to utilise his life time by Messrs. A and B—these may be interpreted Ability and Blarney; or Messrs. H and C as Messrs. Hamburg and Cunning—*unimpeccable*. The prospectus stated that immense returns had been made, realising to the former proprietors vast large sums of money, but the much larger could yet be obtained by proper working. Nothing in fact was wanting but a little capital to make the sett a rich property. The moderate sum of one thousand pounds was the price for this splendid adventure. The prospectus was submitted to a mine broker of good standing, who undertook to find capitalists, provided on visiting the property he found it all likely to justify the statements made. As he was about to inspect properties within a reasonable distance he made the moderate demand of only 20, for travelling expenses. A and B agreed to pay this should the statements made not prove correct, or such as he could not recommend his clients to take up the company. The broker went, he came back, but could not recommend it. A and B shirked paying the fee, affirming that it was no concern of theirs that the company was got up that they were to pay it. It was no more than 60 shillings than 60 thousands.

I have since heard that other parties either have or will make the venture, and once again many elegments. Ladies and country folk will be induced by the glowing colours which Hamburg and Cunning can so well lay on, and once again be taken in. Half the money price will go for commission to the getters up of the company, the usual reports of "splendid rocks of lead" being fortuitously repeated, with the addition of "most encouraging prospects of ultimate success;" and at the end of a year, or at the first meeting, a call will be made, be partially complied with, and by the middle of 1875 the Great L. W. will bid the world good-bye, to be born again with a new name. CAVEAT EMPITOR.

CORNISH MINE MANAGEMENT.

SIR,—Your correspondent, "Shareholder in Four of the Mines Mentioned," is, I fear, one of those misguided gentlemen (and there are many of them) who are ever ready to swallow the golden bait thrown out to them by men whose only success has been to secure a few like him, and to start a mine; and as such I do not at all wonder that he is so easily duped into the belief that the manager of his four investments is competent to look after them, as well as any others that may come to his net, and consequently, he is held up as a brilliant of the purest water. "Shareholder, &c.," has doubtless as much faith in the mines he has embarked in as he has in his manager, but I hope he will not one day find to his cost that his opinion is not worth much as to one or the other. Experience tells me that no man can give that time and attention to several I suppose, and as justice to his employers; and the fact of there being a resident agent appears to me so much the worse for the shareholders, for to maintain resident agents requires, in addition to the annuity paid to the manager, a handsome remuneration per annum—a charge, I am sure, no mine out of the list enumerated in my previous letter can afford. The four worthies mentioned by your correspondent are, no doubt, able men, but if they are the *pari passu* we are led to believe, I am only surprised that they do not seek some more legitimate field for exhibiting the genius which has been shown by their general. In the four mines in which your correspondent is interested (and I may add in a parenthesis those he is not) how many, if any, may I ask, have ever returned a sixpence to the adventurers, and what are the present prospects of either of them doing so? So long as there are men with more money than brains, and they continue to deal out calls indiscriminately, it does not want much management to spend it (for I venture to assume that in some instances the agencies may be equivalent to the third of the whole monthly costs) or to prevent an application to the Stannary Court. The term management is an absurdity, there being little to manage, and two or three to do it, at the expense of the unlucky shareholders. Were I to particularise and select as an example any one mine, I daresay I should be charged with running down a valuable property, but let anyone interested, and who knows anything of mining, take a tour round the several mines referred to last week, and he will soon see for himself where his cash is invested—at any rate, that part of it not applied to such ends. If people can be so foolish as to invest their capital in any "hole" that may be recommended to them as a mining company, and mainly on

the faith of a name and a report, they deserve to lose their money, and are not entitled to an atom of sympathy. There are persons, doubtless, so unscrupulous towards them that they will take all that they can get, and being so, I pity those unlucky wights that are doomed to call in their clutches. I do not seek the appointment of manager; if I did, I think I should be able to show the acceptance of the "bait" enumerated in the *Journal*, seventeen out of the twenty not being worth the aggregate salaries of the respective managers and agents. LEX.

EAST WHEEL LOVELL.

SIR,—I am glad to see some shareholders in this mismanaged mine are agitating for a meeting to be held in London. I have long thought this should be done, but have felt the extreme difficulty of a single shareholder taking any action in the matter. I, as well as your other correspondent, was astonished at the statement of accounts. Your last correspondent refers to the large sum of 1910, for bills, dues, &c., being lumped together without date. I may mention that when I remitted my call 10 days since I asked Mr. Rogers whether the bills, dues, &c., were charged up to date, as no date was given; but that gentleman has not seen fit to favour me with a reply, although the receipt for cheque duly arrived. I, therefore, infer the management are yet keeping something back. Can anyone help us to get a meeting called in London by telling us the way to set about it? I have no time to go to London to get a list of the shareholders, and if the pursuer refuses to answer a question that I consider I am entitled to ask he is hardly likely to give me a list of shareholders.

By calling a meeting in London we could ask sundry questions that we are unable to get answered by letter, and then would know our exact position. Our shares are unsaleable from the fact that parties are afraid to touch them, the accounts being kept, to say the least, in such an extraordinary manner. I, for one, say let us know the worst, and if the management have nothing to conceal, they can have no objection to meet the London shareholders, and by so doing improve the position of affairs. Mr. Rogers, who seems to treat the mine as his own private property, although on a small shareholder, is often in town, and it can make no difference to him to meet us here. Let us hear at once if it is true the pursuer and others are drawing enormous salaries. Let us know what this "fee" means. Mr. Rogers is in business, and no doubt a man of business. Does he pay his sent into him, "fee, &c.," without asking the meaning? Why then, should not we poor shareholders—who have been so heavily punished by paying a call in lieu of receiving a dividend—have the required explanation? I do trust, if you kindly publish this, that some shareholders who have a larger holding than I have will at once call a meeting.—*London, Jan. 20.* C. J. R.

TUNNELING v. OTHER MODES OF MINING.

SIR,—As Tunneling, from being an engineering *chef d'œuvre*, seems to be passing into commercial favour, I venture to request you to give me a place for some remarks on Mining by that means—remarks neither from the point of view of the Stock Exchange broker nor from that of Captain Trepolanden, late of Cornwall, now of Nevada—nor certainly from that of the American vendor. Such value as can attach to the opinion of a man who has known mining countries for nearly 20 years, and has applied to the consideration of mining such education as is implied in the being an University graduate, and a member of the Bar, can be fairly attributed to mine, and I deliberately consider Mining—legitimately and honourably conducted—to stand in the first rank of practical and practicable enterprises, and that, at a time when railroads, chemistry, and modern science and experience of all kinds are applied to it, and when an increased supply of the precious and other metals is a growing necessity, it is scarcely to be treated by its common reputation; for, as we all know, some people believe mining to be a sort of legend, a hocus, or lottery, by which somehow the vexed earth is induced to part with its treasures, and in which the many holders of blanks must be content with having had the chance of a prize; others, again, better informed, think that, like horse-racing, the thing itself is good enough, but decline to have anything to do with "pulling," "roping," recovery of all sorts, or to join in an amusement where they must rub shoulders with wretched and brazen-faced takers of the odds. And it has come to pass, speaking broadly, that adventurous foreigners and the masters of the ceremonies who introduce them to a public whose confidence is, with good reason, exclusive of the profit—and the long-drawn list of widows, half-pay officers, and slender annuities—has been a sort of legend, a hocus, or lottery. This much is certain—"off-dutur opes, irritum mentis malorum"—gold and silver do come out of the ground, and I protest that there is no more necessity for iniquity to accompany such exit than that of corn or potatoes. Miners say "it takes a dollar to win a dollar," and it is a fair estimate to say that 80 per cent. of gross profits is devoured by expenses—nevertheless I say, and some day may prove, that 20 per cent. offset for costs ought to be the average difference between gross and net. Let us see how the thing works:—

1.—Mineral deposits are discovered, in far countries without roads, communications, or the necessities of life, by hardy "prospectors," whose wandering craft is a growing necessity, and is scarcely to be treated by its common reputation; for, as we all know, some people believe mining to be a sort of legend, a hocus, or lottery, by which somehow the vexed earth is induced to part with its treasures, and in which the many holders of blanks must be content with having had the chance of a prize; others, again, better informed, think that, like horse-racing, the thing itself is good enough, but decline to have anything to do with "pulling," "roping," recovery of all sorts, or to join in an amusement where they must rub shoulders with wretched and brazen-faced takers of the odds. And it has come to pass, speaking broadly, that adventurous foreigners and the masters of the ceremonies who introduce them to a public whose confidence is, with good reason, exclusive of the profit—and the long-drawn list of widows, half-pay officers, and slender annuities—has been a sort of legend, a hocus, or lottery.

2.—By and by comes the "speculator" ("capitalist," the dear simple creatures denominate him). He sees, we will say, the thing is good enough to bear a superstructure of profitable speculation; he gets it for life-long occupation or ultimate livelihood, or, if it is, seldom answers the appeal. Such a man thinks nothing ahead of the commercial aspect of his mine; his rule or his own tough back can pick his "grab" and tools, in the first instance; and, in the next stage of his industry, the mountain "city" that springs up finds him in flour, sugar, bacon, canned meats, and slop clothes—in powder, fuse, and steel—at 400 or 500 per cent. profit to the dealer, and in general debasement when his pile is big enough for him to indulge in that.

3.—The certain net rises in Europe, and, if our friend with the bonds has ready money enough to grease the wheels, it discloses very snug and harmonious proceedings: the game goes on velvet, preliminary expenses are guaranteed by our friend of the bonds to the promoters, assays, reports, &c., are graciously received, prospectuses cooked, boards of directors arranged, and all is ready for the widow and the half-pay officer to take their innings. The venture is launched; the bond has swollen into a vendor's price of five, six, seven, eight, ten, nay, fifty—times its early size, and the vendors are obliging enough to show their confidence by taking one third of the price in stock.

4.—By this time Captain Trepolanden has gone out to the scene of action—the "good old rule, the simple plan," when Americans bought mining stock in their own country was for a ne'er-do-well or "scurvy" nephew of an influential dandy to be sent out as manager, and for a reign of frontier luxury, fast teams, champagne, and all the rest of it, to set in after no attempt even to work the mine ever being made, and shortly, by an easy grade—capital being expended and assessments or calls exhausted—to the sheriff's sale, and the stock down to a cent, on the dollar, the mine often being good all the while; but we were talking of an English company; the Cornish captain goes to his post; he sends mysterious and awe-striking telegrams about "setts," "winzes," and "levels," and Heaven knows what; the stock is "bullied," the promoters and men behind the scenes "got out," then it unfortunately happens the main shaft makes water incomprehensibly, then the pumps are worthless, and the machinery (got there at vast times its cost) breaks down and will not do what it promised to; then wood costs so much per cord, "hauling and teaming are intolerable, and all the evils of non-communication arise, and so on with the well-known story—and the widows weep, and the half-pay officers—do as our army did in Flanders. Even in the event of success and of dividends, the real blow-out of this kind is for the cooks and waiters, and the stewards of it have to be thankful for the mere post-paid fragments of the banquet they themselves have paid for.

No, Sir, mining, honourably and intelligently conducted, is a good wine—it needs no bush, not one so expensively fabricated into a rod for their proper degradation for those who buy that wine to drink, at any rate; let mining be carried on with the intelligence and circumspection required, as a matter of course, in any other business, and all this hocus, pocus idea, and all this regurgity, from its native mountains to Capel-court, will fly screaming away, like the obscene birds from *Æneid's* picnic.

Let the purchaser:—

1.—Employ competent agents, with antecedents that guarantee their future behaviour.
2.—Never give more than three years' purchase for a going concern.
3.—Always make the vendor take stock as his price for a non-going concern, and to devote the subscriptions to working expenses, and he will be as safe in buying mines as subinary commercial laws can hold him.

A few words on tunneling, and I have done. Of all systems it is the simplest and most comprehensive—the most scientific, and has the most common sense in its favour.

With your permission, Sir, I will condense into a tabular form the unshaken sediment of an eighteen years' experience, and I beg to say that every word is carefully chosen, and it is the result of a long and bitter experience.

Lode mining in mountains has cost at least 80 per cent. of its gross product, chiefly because it has been without a practical and philosophic theory; it has been done chiefly by shafts, of which latter I say—

1.—The shaft system is costly in itself; is only individual in its aim or scope, and leads and tends to accident and mechanical embarrassment.
2.—It has generally been practised in places remote from the best communications.
3.—It is, from its nature, liable to dishonesty, ignorance, and "grooviness." On the other hand—

1.—The tunnel system has all natural forces in its favour; but I would not use it, nor depend on it in any way, under the following conditions:
2.—It must be practised where the lodes run in (A) belts or groups (so as to multiply chances) across its line in an average direction (B), and it must be practised in combination with the railroad idea, by which I mean that the tunnel when made must have a railroad utility, and, consequently, have the best communication, at one end at least.

3.—It presents a capacity for simple management, contract work, precautions against dishonesty, and the like, and has especial legislative favour already.

There, Sir, is a mining gospel—gold and silver can be so won with an expenditure of 20 per cent. of the profits.

I have dealt with this entirely in the abstract; but, if you will allow me, I can be concrete enough. One word more. It occurs to me that I may be thought to be puffing the Sufro Tunnel Company; not so, for I know a tunnel ten times greater and better than that one, which will not cost one tithe of the price. EMERITUS.

NEWFOUNDLAND MINING COMPANY.

SIR,—In the *Journal* of Jan. 10 an article appeared reflecting on the present position and future prospects of this company. As I have known this mine for some years, I have no hesitation in saying that when the American adventures sold their lease to the present company the mine had no reserves of ore; to use a mining phrase, the eyes were completely picked out of it. This will account for the fact that Prof. Vincent's and the other reports published with the original prospectus were from 7 to 10 years old; and although Prof. Vincent was in Newfoundland while the company was being floated here, he did not, for reasons best known to himself and the directors, again visit this mine to verify his original survey. I unhesitatingly say that this mine requires a very large outlay—say, at least 20,000, to 30,000, and unless the present company can afford to do this their capital will be lost.

From the tone of the original prospectus investors were supposed to have secured a second Hudson Bay, and instead of which it now appears they have only

got possession of thousands of acres of waste land, some of which may or may not contain minerals. Hence the present price of this stock. A VISITOR TO NEWFOUNDLAND.

LAST CHANCE AND TECOMA MINES.

SIR,—As the general meeting of the above companies will soon be held, I hope the shareholders in London will organise, in order to demand at meetings that a large sum of the purchase money be returned to shareholders, which vendors are bound to pay when the promises of prospectuses have not been fulfilled. The shareholders of Tecoma especially have great cause to complain, and I believe can enforce the vendors to return the whole of their money, but the opinion of counsel could be taken, so that I hope all shareholders will do their utmost for one another. The vendors of South Aurora, Russia Copper, and various other companies, have had to return large sums of money, and we have as good a case, if not a better, than any of them.—*Jan. 22.* SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's *Journal*.]

COAL A DANGEROUS CARGO—No. III.

ON THE LOSS OF THE HERBERT GRAHAM, OF NEWPORT.

MR. VASSARD, consulting chemist, of London, stated that he had had specimens of the coal carried by the Herbert Graham submitted to him, and had analysed them, the result of which would be found in the following report:—

"The coal carried by this vessel at the time she was burned has been analysed and otherwise examined by me. It contained per 100 parts—Moisture, 0.35; hydrogen and nitrogen, 9.10; carbon, 81; mineral ash, 6.40; iron pyrites, 3.04; divers loss, 1.21. This kind of coal, it may be seen, contains a high percentage of pyrites. I found it very brittle, and, though the samples I received were lumps, knowing the general practice of the coal trade with the South Pacific Coast, I am warranted in saying that the cargo was through and through coal, with rather more small than large. The quantity of iron pyrites it contains is very large. Iron pyrites is a bisulphuret of iron—that is to say, a compound of iron and sulphur—and it is a bisulphuret, as shown by analysis, if allowed to naturally decompose, would give nearly 1 per cent. of free sulphur. To the fact of so large a quantity of iron pyrites I attribute the burning of the ship. When bisulphuret of iron, or iron pyrites, is left in the open air to the action of a moist atmosphere, or when wet to the action of the air, it gradually undergoes a chemical change. One part of its sulphur combining with partly the oxygen of the air and partly that of the decomposing water, becomes sulphuric acid and then sulphate of iron, while the other part of the sulphur, being then disengaged, in presence of nascent hydrogen out of the decomposing water, combines with it and produces sulphuretted hydrogen gas. These chemical changes or reactions produce a great heat, and the sulphuretted hydrogen is thereby heated, oxidised, and finally ignited, and the ultimate result is sulphurous acid and water.

It may, then, be easily understood that if a combustible material, as coal, disengaging already inflammable gases, through its continually going decaying, is found mixed with the chemical bodies producing the above chemical reactions and effects, this combustible will be heated and ultimately ignited. This is the chemical explanation of what is called spontaneous combustion, and of what undoubtedly took place in the hold of the Herbert Graham. If the coal had been shipped dry, and so kept all the while, no accident could happen, as no spontaneous combustion would have taken place.—A. VASSARD.

MR. VASSARD, then examined by Mr. H. Hamel, stated that he was in court during the whole of the examination, and he had heard the stoverdy say what kind of coal was put into the vessel. He had no doubt but that the stifening coal, which consisted of about 70 tons, and which was shipped during wet weather, would moisten the whole cargo, and this would only take a few days. When small coal is taken out of the pit it contains about 3 per cent. of water, and absorbs some more easily; and the coal, as taken from the colliery, if at once shipped, would be sufficiently moist to produce the reactions necessary for spontaneous combustion. He thought the chemical composition of the coal was the cause of the fire on board the Herbert Graham. He did not think sufficient water could be thrown on at a time to put it out when once the coal was ignited. He would suggest, as a remedy for future accidents similar to that which occurred on board the Herbert Graham, that sulphurous acid gas should be forced into the hold at the rate of about 1000 cubic yards to 1000 tons of coal. For this purpose he would have a 2½-in. pipe fitted in coal ships through the hold, and branch fore and aft.—By Mr. BRYNOR: That is the ship is "tight."

By the MAYOR: If the pipe was under water the sulphurous acid gas could be forced through it with a small loss. To extinguish a fire it would not be necessary to keep the hatches down; an ordinary small stove on deck would be sufficient to make the sulphurous acid.

By Mr. BRYNOR: It would be dangerous for seamen to sleep below while the acid is at work. A pipe fitted along the top of the coal would answer the same purpose provided a larger quantity of acid be used, and the deck be "tight."

By Mr. BRYNOR: He did not think there could be sufficient ventilation in a ship to prevent spontaneous combustion.

By the MAYOR: He considered the shoots used by shipowners as ventilators were of little or no use against fire, though they would prevent the gas from the cargo exploding.

MR. VASSARD: There is a difference in coal from two veins of the same colliery, or even from the same vein a few yards distance.

A discussion then arose between the Court and the witness with respect to the ventilators similar to those used at Swansea, and Mr. Brynor remarked that the Swansea coal was more dangerous than the Newport coal as far as explosions were concerned.—Mr. W. DARLEY considered the information received was very valuable.

By Capt. HARRIS: The ordinary temperature, even down to freezing point, is sufficient to make the pyrites decompose, provided water and air be present.

Capt. HARRIS said the theory of Mr. Vassard militated against that of the ventilating shaft.—Several questions having been asked and answered by Mr. Vassard the Court retired, and gave the following report:—

With these facts before them, the assessors felt it necessary, if possible, to seek some means of prevention. Several plans were discussed, and they came to the conclusion, according to Mr. Vassard's evidence, that the introduction of either water or air would have a precisely opposite effect. It further appears from the evidence of Mr. Vassard that if sulphurous acid could be circulated through the cargo it would prevent spontaneous ignition. This acid could be obtained by burning sulphur, 10 cwt. of which would suffice for a cargo of 1000 tons of coal. It was a matter for after consideration how that could be applied, either on the principle of the fire annihilator or otherwise. That method seemed the most practical that was offered, and, in the opinion of the assessors, might be usefully applied to vessels carrying coals on distant voyages. The assessors wished it to be understood, however, that they did not think the general question was exhausted as to preventing a recurrence of such calamities.

CORNISH MINE SHARE MARKET.—The Share Market during the week has been somewhat depressed, and not very much business transacted. This is, no doubt, partly owing to the rather large sale of Australian tin—nearly 500 tons—on Tuesday, and the statement that a large metal broker in London has failed for about half a million of money. It is said that the Dutch will be the principal sufferers in this unfortunate affair. Both of these things have tended to make the tin market weaker and the price of Straits to decline, as it has done, which has done much to depress the tin market. The "Bears" in their knocking down the price of stock. Although the tin market is rather dull just now, yet, from all we hear, we scarcely expect to see a drop in our standards just yet at any rate.

The following are the closing prices:—Bottalacks remain quoted at 65 to 70. Carn Breas have declined to 58, 60, and very little business has been done in them. Cook's Kitchens, 12 to 12½, rather quiet. Dolcoaths, since the meeting on Monday last, when a dividend of 12s. 6d. per share was declared, have declined, and close about 50 to 51, and not much business has been transacted. Devon Great Consols called 1½ to 1½. East Basset quiet, 10 to 12. East Pool, 3½ to 3½. West transactions: East Seton, 5s. to 7s. 6d., quiet. East Lovell still, and receded to 3½, 8. Great Wheel Vor, 2½ to 3½, dull. North Hooker, 3 to 4. Providence called 3 to 9. South Carn Breas have received a little attention, but the price leaves off a little weaker, being about 3 to 3½. South Condor shares have been left rather quiet, at 4½ to 5. South Crofty shares have improved from about 32 to 37, 30; and it is stated that they have a good improvement here. South Dolcoath declined to 2, 2½. South Frances have been dealt in at 13 to 13½, firm. St. Ives Consols, 7 to 8, nominally. A little business has been done in Tincroft shares at 3½ to 3½; Unity Wood, 12s. 6d. to 15s. West Basset, 9 to 9½; these shares are in good demand. West Chiverton, 5 to 5½. West Frances, 12 to 13, rather quiet. West Seton shares a little more enquired for, 32½ to 35. West Tolgus, 25 to 26. Wheel Rase, 25 to 30, nothing doing. Wheel, 2½ to 2½. Wheel Kitty (St. Aznes), 9 to 10, steady. Wheel Margaret, 2½ to 3½. Wheel Seton shares are called 18 to 20, but we have not heard of any transactions. Wheel Cny moderately dealt in at 3 to 3½.—*West Briton*.

NEW FUEL.—Messrs. SIMPSON, of Ilford, have patented some improved machinery or apparatus for the manufacture of fuel from fibrous materials, such as peat, spent tan, and other fibrous refuse. The features of novelty of the invention consist in operating upon fibrous material in a vessel fitted with a fixed grating; and causing knives to revolve horizontally therein, so as to reduce it to pulp; and then discharging the pulp by an archimedean screw ready to be moulded into blocks and dried.

BREAKFAST—EPPS'S COCOA—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills."—*Civil Service Gazette*. Made simply with boiling water or milk. Each packet is labelled—"JAMES EPPS and Co., Homoeopathic Chemists, London."

MANUFACTURE OF COCOA.—"We will now give an account of the process adopted by Messrs. James Epps and Co., manufacturers of Dietetic articles, at their works in the Euston-road, London."—See article in *Cassell's Household Guide*.

HOLLOWAY'S OINTMENT AND PILLS.—ASCITES, ERYSIPELAS, PILES.—The first of the above-named diseases is sure to prevail when changes of atmosphere are both great and sudden, the other two are unhappily ever present in our midst. Unvarying success attends all who treat these diseases according to the simple printed directions wrapped round each box. They are invaluable to the young and timid, whose bashfulness sometimes enlarges life. A little attention, moderate perseverance, and trifling expense will enable the most diffident to conquer their case to a happy issue, without exposing secret infirmities to anyone. The ointment arrests the spreading inflammation, restrains the excited vessels, cools the overheated skin, and alleviates throbbing.

Lectures at the Royal School of Mines.

ON METALS.

The second course of evening lectures was commenced at Jermyn-street, by Dr. PERCY, F.R.S., the subject of his first lecture being COPPER. This metal has been known from the most ancient times; it derived its name from a corruption of the Latin name for one particular variety of copper—Cypran copper. Taking what are called the physical properties of copper, we have, first, its colour, which distinguishes it from every other metal without exception, and from every other metallic substance except one. It is capable of receiving, when suitably polished, a very high lustre; it crystallises in the cubic system, most metals do; it does not necessarily follow that its crystals are uniformly cubes, but in some form (octahedron, &c.) capable of being derived from the cube. These crystals are sometimes formed when a large mass of the metal is poured out, and solidifying externally leaves a cavity within, in which the crystals will be formed. The relative weight or specific gravity of copper is 8.93, the weight of a certain quantity of copper compared with the weight of an equal bulk of water, pure, and cast as soundly as possible, is 8.93. And here I may observe we do not always get the metal pure; it is frequently contaminated with internal cavities, and hence probably the discordant statements as to the relative weight of copper in different works on engineering. Everyone almost knows that copper is malleable, or hammerable; it can be hammered out when cold without cracking at the edges, but it is much more malleable when heated. If copper be hammered in the cold for a time it will acquire a degree of hardness and brittleness, and if the hammering be carried on beyond a certain degree the metal will invariably crack; then, we have only to heat it to a certain degree—say, to a dull red heat, and allow it to cool; whether rapidly or slowly is immaterial; it loses its brittleness. Heating a metal with a view to softening it is often practised, and is called annealing the metal. The malleability of copper may be much affected by the presence of certain impurities in the metal. If copper be heated up to a certain point it becomes more malleable than when cold, but if we proceed beyond that point, and raise it to a temperature nearly its melting point, it becomes so brittle that you may take a large mass of the metal and pound it up in a mortar. Founders sometimes break it in this manner when they desire to weigh out certain quantities for casting, &c. Ductility, or the property of being drawn out, especially into wire, is nearly allied to malleability. Every malleable metal is also ductile, but the ductility of a metal is not necessarily in the same ratio as its malleability. Of all metals the most malleable, and at the same time the most ductile, is pure gold. A curious point about the specific gravity of copper is that if a piece of copper be rolled out without annealing, or hammered out, to a certain point, it acquires a lower specific gravity or relative weight; the difference is not much, but it is perfectly sensible. It is quite true that by taking a mass of metal, cast in the usual way, and pressing it, we increase its relative weight; this only takes place in consequence of the closing up of any cavities which may exist in the metal, for in casting the outside of the mass cools first, and the inner part on cooling subsequently contracts, and leaves these void spaces. The strength, tenacity, or tensile strength of a metal or body is the power which it has of resisting disruption by applying to it a pulling force. In this country we always estimate tenacity per square inch of section. The tenacity of copper of first-rate quality, in the form of a rolled bar, is between 16 and 17 tons—that is, a rod of such copper one square inch in section would hold a weight of about 17 tons suspended to it without breaking. The tenacity may be much affected by temperature. Copper when heated to a certain degree has a lower tenacity than when cold, and it becomes lower and lower as we approach its melting point. In considering the tenacity of a metal we must not forget to distinguish between the effects of a force acting suddenly, as a blow, and a force applied gradually, as is done in estimating the tenacity. Thus, for example, the tenacity of iron is increased as the temperature is lowered, but at these lower temperatures it is more liable to break by the action of a blow; and, again, it was found some years ago that iron which has a tenacity of some 20 tons resisted the force of a blow (by yielding) more than steel, which had a tenacity of perhaps 30 tons. The specific heat of copper is 0.093—that is, say, for the quantity of heat required to raise one part by weight of water 1° in temperature, only 0.0935 of that heat will be required to raise the temperature of one part by weight of copper 1°. If a bar of copper be heated from the freezing point to the boiling point of water it will expand 1.500 of its length; it is one of our best conductors of both heat and electricity, hence its importance for the construction of electric cables. Its conducting power is not equal to that possessed by silver, for assuming that of silver as the best of all metals at 100, that of copper will be 93. If, however, impurities (as phosphorus, arsenic, &c.) exist in that copper, its conducting power may be reduced enormously. The melting point of copper is not precisely known, for we have at present no satisfactory means of determining these high temperatures in thermometric degrees. Of copper, we may say that its melting point lies between those of silver and gold. At the ordinary temperature of the air copper undergoes not the slightest change in an atmosphere of oxygen, whether moist or dry. The tarnishing of copper at ordinary temperatures is owing to other compounds in the air, especially in the London atmosphere—sulphur compound and carbonic acid. It seems that in the presence of carbonic acid, oxygen has the power of forming a kind of greenish rust on the surface of copper; when heated, however, oxygen acts rapidly on copper, and the copper becomes coated with dark or blackish matter—copper scales; and if the heat be continued the whole of the copper may be thus converted into the red oxide of copper—a brittle crystalline substance. In round numbers, 84 parts by weight of copper combines with 8 parts by weight of oxygen; it is called red oxide, because when reduced to powder its characteristic red colour is brought out, or it may also be seen by holding up a "scale" between the light and the eye; at the same time the scale will be seen to be highly crystalline. If we take this oxide and heat it red hot after mixing it well with charcoal or small coal, we "reduce" it, as chemists say, to the metallic state. The charcoal sizes hold of the oxygen, combined with the metal, and passes off in the form of carbonic acid, and the metal will be left behind pure. This red oxide has the property of communicating to glass or porcelain a fine red tint; the bull's-eye lamps used on railways having a fine red colour, are coloured by the presence of this red oxide of copper in the form of a thin film upon the surface. Late in the last century the process was discovered, or rather re-discovered, for the ancients were acquainted with it, as the fine ruby tinted glass in our old cathedrals, which is coloured by this red oxide of copper, shows.

The following is the outline of one process for staining the glass—Take one part by weight of the sulphide of copper (which may be made by heating together common blimstone and copper turnings in a Florence flask), a dark green compound with metallic lustre, two parts of common iron scale, three parts of common blue vitriol (first heated to a dull red heat, but not too hot, four parts of calcined yellow ochre; grind the mixture fine, and rub it up with oil of turpentine (which should contain some portion of oil which exposure to the air has rendered more or less thick). The mixture should have the consistency of common cream. Paint over the piece of glass you wish to stain with the mixture, and let it dry; when dry heat it carefully in a common stainer's muffle (which is merely a furnace in the shape of a box, with the fuel outside, so as to prevent having any fuel in the box), then let it cool. When cold take it out and wash off the mixture; it comes off easily. If you take a piece of glass thus treated, and hold it up between the eye and the light, you will see that by this process it has acquired just a perceptible greenish tint. In fact, the greenish tint is due to the thin film of the red oxide of copper and iron. To continue the process, take the glass and put it once more into the muffle; heat it, and when hot place in the lower part of the muffle some small coal, heat it again, and allow it to cool. Take out the glass, and now it will be seen to have acquired a brownish red tint; finally the glass is to be heated again in the same kind of muffle, and by that means it acquires the brilliant red colour. The fine red colour on some of the China vases made by the Chinese is probably produced in some similar manner to the above; there is no doubt but that the colour is due to copper, and more than that to this red oxide of copper.

This red oxide of copper has the power of combining with silica or sand; sand is an acid, not in the popular sense of the word, but in the chemical meaning of acid; it acts like an acid at high temperatures, and combines with this oxide of copper, and forms a fusible compound, which with certain other ingredients constitute the base of certain red enamels. By casting the copper in a certain way we can succeed in covering the whole metal with a very thin film of red oxide. Here is a piece of Japanese copper, coated in this manner; and I may here observe what wonderful people these Japanese are in many matters relating to metallurgical operations; they are, indeed, a wonderful people, and we alone do not possess all the knowledge concerning metallurgy. They have published a book years ago on the extraction of copper from its ores, well illustrated, with every tool shown in coloured drawings, and they know how to look in Europe on the subject so full as this of the Japanese. A short time ago they sent 200 tons of copper to a large manufacturing firm in Lancashire. The coating of oxide on the copper seems to prevent its tarnishing even in a London atmosphere. The manner in which it is produced is this—Take a box of wood, or any other material, and place across the top of the box a number of metal bars, best triangular in section with the flat side downwards; then place over the whole a piece of canvas, which dips down into deep folds in the spaces between the bars. The box then being filled with water to a certain height, the water will stand at that level in each of the gutters or troughs formed by the canvas. Then a mass of copper, heated to a temperature much above its melting point, is held into these gutters, where it is cooled by the water. There is no difficulty in casting copper in water, provided it is heated to a sufficient high temperature. When the metal is heated to a very high temperature, and then poured into water, there is no immediate contact between it and the liquid water; it is supposed that a mass of steam prevents the contact till the metal has cooled down sufficiently to allow of the contact.

There is another oxide of copper besides the one we have been considering—the black oxide. It may be formed by taking the red oxide or common copper scale, and after reducing it to powder heating it for a long time with free access of air, and it takes up an additional quantity of oxygen, and becomes black; in this oxide for every 32 parts by weight of copper there are 8 parts of oxygen. It is this oxide which exists in all copper compounds which have a greenish or blackish colour; it is this oxide which gives the greenish colour to the glass in the process of staining, as above stated. Although we can colour glass by this oxide of a greenish tint, yet if we heat a mixture of this black oxide and common sand strongly, we get not a blue compound, but a compound of sand and the red oxide of copper; in this case the sand or silica reduces the black oxide to the red, and the charcoal (or coal) in the muffle and some of the gas in the case of the glass staining.

There is another compound of copper of vast importance to us—the sulphide of copper, which may be formed by heating sulphur and copper strongly together; at the moment of contact there will be a great development of heat and light. It has a dark metallic grey colour, and a more or less metallic lustre; it occurs in nature, and plays an important part in the extraction of copper from its ores; it is perfectly insoluble, as both the oxides are; it melts at red heat, and becomes very liquid; it has no immediate practical application. In the next lecture we will further consider this compound.

ECONOMISING FUEL.—Mr. E. FREVILLE, of Thoiry, France, has patented a certain improvement in the use of heated gases and of steam, whether superheated or not, applicable to all kinds of motive-power engines, and ensuring great economy of fuel, with other advantages. This invention is based upon an application of the principle that when a fluid, gas, or steam expands in working its temperature lowers, the object of the application being to reduce the interior condensations in the cylinders of motive-power engines, and in the case of heated gases the inconveniences arising from their high temperature. The invention consists in various arrangements for obtaining the admission to the cylinder of the motive-

power engine of one or several motive-power fluids, through orifices properly calculated and permitting, as it were, the calculation at will of the pressure as well as the temperature of the fluids in the cylinder at the different moments of the throw, constituting a method of regulated introduction into the cylinder. This method, which permits the use of temperatures of 200°, 300°, or 400° centigrade and more, without the usual inconveniences, ensures a considerable economy of fuel.

SOUTH STAFFORDSHIRE AND EAST WORCESTERSHIRE INSTITUTE OF MINING ENGINEERS.

The seventh annual meeting of members was held in the Geological Museum, Dudley, on Tuesday. The President (Mr. W. BLAKEMORE) occupied the chair, and there were nearly 100 members present.

The annual report of the Council of the Institute was as follows:—The Council have much pleasure in being able to report on the continued prosperity of the Institute. The number of new members added during the past year has been 39. This may be considered a flattering proof that the continued efforts of the Institute to advance the science of mining, and to improve the general standard of the scientific education of those interested in the working of the mines of the district, are appreciated. The Institute has lost by death two members, and seven members have resigned; partly on account of mining institutes having been organised in districts more convenient to them than this. The members have continued to hold monthly meetings throughout the year in the museum. The classification of its valuable collection of fossils and minerals is still going on, and, when completed, this invaluable collection will be a great accession to the Institute as a source of study and research into the paleontology of the coal measures and Silurian formation of the coal field, and materially assist in the correlation with other coal fields. It will be in the recollection of members that, in the inaugural address delivered in this Institute in January, 1872, by the then president (Mr. Henry Johnson, sen.), the subject of "Compulsory Drainage," of both the surface and mines of this district, was first mentioned (following in the wake of the then proposed North Staffordshire Bill), and during the last session of Parliament a Bill for this district was presented, and an Act obtained for that purpose; and is, as you are aware, now being carried out under the body of commissioners appointed by the Act for that purpose. A great number of the members of this Institute materially assisted in the passing of this Bill, so that the important work started by the Institute has borne good fruit, and your Council believe that this very desirable measure will be the means of prolonging the life of the Black Country for many years to come, and she may take the credit of plotting the way for other similarly waterlogged coal fields. Your Council refer with a great deal of pleasure to the excursions made on May 22 to the Cannock Chase portion of this district, when they visited the site of the Cannock and Huntington Colliery, the Pair Oak Shilling, and the Cannock and Rugeley Collieries; to the Nottinghamshire coal field, on June 16, when the Hucknall and Cinderhill Collieries were visited; to the Lancashire coal field on August 4 and 5, when many of the leading collieries and iron mines were inspected; and on September 4, to the Pelsall Coal and Iron Company's collieries in this district. All these excursions your Council are pleased to say were well attended by the members, and it is almost needless to refer to the interest and pleasure which these very interesting and instructive excursions afforded to the members generally, as mining was seen in nearly every mode and stage of progress. Your Council have further pleasure in reporting that the income of the Institute just passed, shows a total of 4907. 12s. 4d., or an increase of 1055. 5s. 6d. over last year. The liabilities of the Institute are small. Your Council recommend that a series of scientific lectures relating to mining be arranged for during the present year. In conclusion, your Council invite interested members on mining subjects during the current year, and trust the usefulness and prosperity of the Institute may continue to increase from year to year, as it appears destined to do.

The report was adopted unanimously, as was also the report of the auditors.

Mr. Arnold Thomas, colliery manager, Newnham, Gloucestershire, was elected an ordinary member; and Mr. James Bright, colliery manager, West Bromwich, was nominated an ordinary member.

Mr. John Field was appointed President of the Institute; Mr. John Hughes, vice-president; Mr. T. Latham, treasurer; and Mr. H. Johnson, jun., secretary.

Mr. JOHN FIELD having been conducted to the presidential chair, said: I thank you most heartily for the honour you have done me in selecting me to fill so important a post as President. Having been connected with the Institute from its infancy, and on its Council, I consider it the highest honour you could confer on me in connection with this Institute in electing me to this honourable office, and I can assure you that nothing shall be wanting on my part that is requisite for conducting its business with that fairness and impartiality that it demands; and I trust, with the assistance of its Council, that at the close of the year you will be able to regret the choice you have made. As you are aware the objects of this Institute are to discuss the best means for the ventilation of coal and other mines, the winning and working of mines, the prevention of accidents, and the advancement of mining and engineering science, and generally to further this object papers have been read during the year, and the attention of your Council and ordinary members has been directed to this object, and I trust that the practical experience which has been brought to bear on the various subjects has not only been profitable and instructive, but has been appreciated by its members. The advice given to every member has been to carry out the Mines Regulation Act—every clause, although their names are legion; but I consider them very stringent, and I think there shall be absolute safety under their provisions. 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judicious use of more screening machinery, in order to consume coal to a minimum size far below what is now too often considered practicable. In the second and frequently third working of this thick coal this principle of using small coal (which is generally the best in quality and purity) would effect material changes in the yearly balance-sheets of the colliery owners, and economise the consumption out of a given area. To sum up the economy manifested during the past few years, all the evidence given before the Coal Commission goes to prove "that in one way and another a saving of not less than 20 per cent. has been effected in the smelting of iron during the last 10 years, and all the indications are that yet increased economy will be effected in the future." The same may be said of every department of iron manufacture. Dearness and scarcity of fuel has and will stimulate to economical appliances in every way possible. This great principle of economy is a question within the domain of our institutions, for it can not only be profitably considered as bearing upon the extraction and consumption of coal, but equally advantageous as applied to every commodity used in carrying on the vast industries of our district, and it is one of our professional duties to make our knowledge conduce to the more thorough application of this principle.

A cordial vote of thanks was passed to Mr. Parton for his paper, and it was ordered to be printed.

Mr. W. W. Heeley, C.E., Darlaston, exhibited a working model of the registered check safety signal, and Mr. W. T. Biddons, Hill Top, West Bromwich, showed a working model of apparatus for preventing overwinding. The following letter was read from Mr. Walter Negs, a late member of the Institute, and who has gone out to India as mining engineer to the Indian Government:—

"Warwood, C.P., via Bombay, Dec. 12.—My dear Mr. Johnson.—To-morrow, I believe, the mail goes. I should have liked to have been here a few weeks longer ere I wrote, but I have just been thinking that the annual meeting would be taking place ere the following mail arrived, and that you might be saying, 'Ness might have dropped a line.' I have been here a fortnight, which is not very long to get acquainted with a new field. I am sorry to say that the pit that was to be down last June, or sooner, is not down yet, but is full of water, and no chance of getting machinery forward for four or five weeks yet, to start again (by next March they may get down.) You can scarcely conceive how out of the way this is to get anything of the kind, with the exception of a few native productions, which are more due to the soil than effort of theirs. I don't mean to insult the poor natives, who are very willing to do what they can, which is not much. I fancy I promised last annual meeting to say something about the geology of this place by the next meeting, and should have been glad to have fulfilled my promise if I could, but the chief variety I have seen is amongst traps. All the way from Bombay to within two miles of where I now write—over 500 miles—there is nothing but trap all the way. Where there has been a little stratified measure, the trap has changed it into jasper. Here the sandstone overlies the coal, composed of fine quartz—'nick stuff' for buckets, where there is a come of 300 gallons per minute. I hope, however, that after the pit is down the sinking afterwards at other places will be easier. The sandstone is so porous that the water drains for some miles, and the field is of considerable extent, though the quality is not of the finest. All these particulars I hope to give you some other time. I hope to be able to stand this climate, if it gets no worse. I believe the sun in six months or less will be 30° warmer than it is now. For some two hours in the middle of the day the sun gives you the feeling of a red hot poker on your cheek, or close by it. The cool evenings put me all right again, but some old staggers here take fever. None of these have more than four to six hours over an attack. I have no tendency to anything of the kind, although I feel that I must take care, and hope that I may be able to say the same all through. . . . Hoping you have all spent a merry Christmas, and wishing you a happy new year, I am, yours very truly, WALTER NESS."

This concluded the business, and the members, after partaking of luncheon at the Dudley Arms Hotel, walked to the Earl of Dudley's Castle Fields Limestone Pits, Tipton-road, Dudley, kindly placed at the disposal of the institute by his lordship's principal mining agent, and witnessed some very interesting experiments with the Burleigh rock-drilling machine, under the superintendence of Mr. Cobb, the agent for this district. Mr. R. Applegarth (London) conducted a series of interesting experiments with the Denby patent mining apparatus. An apparatus combining various appliances for respiration and light in deadly and explosive gases met with in exploring mines. The experiments were very successful.

FOREIGN MINING AND METALLURGY.

Notwithstanding the depreciation in prices, which is becoming more and more general in France, business remains in an exceedingly quiet state. In Champagne there has been scarcely anything passing in pig, and very little in iron and plates. In the South of France industrial activity has been better sustained, although business has only been carried on from hand to mouth, or from day to day. At the last adjudication for plates at Toulon, at the commencement of the month, the tenders delivered presented margins of from 4L to 4L 16s. per ton for common plates, 4L 16s. to 6L 8s. per ton for ordinary plates, and 6L to 7L 4s. per ton for superior plates. MM. Schneider and Co., of Crenot, obtained the contract for the principal lots. M. Revol, of the St. Etienne forges, secured the contract for fine plates. In the present difficult condition of the market it is impossible to give quotations for iron and pig with any exactitude, as prices vary not only from basin to basin, but even from establishment to establishment. MM. Cail and Co. have been distributing a dividend of 1L per share during the last few days. The Belgian iron trade remains in an extremely feeble state. Prices are so nominal that it is rather purchasers than sellers who fix them. No understanding has been arrived at among producers to fix prices in a semi-official fashion, and the continuance of the present state of things can scarcely be regarded as otherwise than prejudicial to industry generally. Some contracts of no great importance are stated to have been concluded for iron, pig, and plates; the terms of these contracts exhibit no sensible variation. In respect of these transactions, there has been scarcely any business passing in the Belgian iron trade. The Lower Sambre United Collieries Company will pay a dividend of 6L per share at the close of this month.

Rough copper has been maintained without change at Paris. Some transactions have been concluded in Corocoro minerals at a reduction of 1L per ton. Chilean in bars, delivered at Havre, has brought 89L per ton at Paris; ditto in ingots, 94L per ton; tough English, 93L per ton; and pure Corocoro minerals, 90L per ton. Copper has been quiet at Marseilles; Spanish in plates has made 86L per ton. In Germany quotations for copper have been hardening more and more. After a little temporary feebleness tin has been reviving on the Paris market; Banca, delivered at Havre or Paris, has made 130L; Straits ditto, 130L; and English, delivered at Havre or Rouen, 124L 8s. per ton. At Marseilles tin has also experienced a trifling advance, on the intelligence which has come to hand with respect to the comparatively small importance of the Dutch sales. At Amsterdam 74 fl. has been paid for Banca; there has been no great amount of business passing in Billiton; disposable lots of this last description of tin are obtainable at 72 fl. to 72½ fl. Tin has been priced rather irregularly in Germany. There has been no great amount of business passing in lead at Paris; French lead, delivered at Paris, has made 23L 16s.; Spanish, delivered at Havre, 23L 12s.; English, delivered at Havre, 24L; and Belgian and German, delivered at Paris, 24L per ton. Business in lead has not been active upon the Marseilles market, but prices have been a little better supported. The German lead markets have not experienced any material change. At Paris quotations for zinc have been sustained, and have even exhibited a little more firmness. The German zinc markets have been firm, but have not exhibited much activity.

The Belgian Coal Trade has continued extremely quiet, and consumers show very little disposition to conclude contracts. The production has been restricted as much as possible, and several collieries of the Charleroi group are stated to have decided to stop working on Mondays and part of Saturdays, in order to avoid an accumulation of stocks, which begin to be very serious. In the Charleroi basin the stock on hand is stated to be more than 400,000 tons; in the Centre basin, as well as at Mons, stocks have been rapidly increasing, notwithstanding all the measures which have been taken to restrict production. If the demand for coal is decreasing in Belgium, the competition for business is becoming every day more serious; reductions are, in consequence, conceded on all hands, and it is currently reported that coal owners are ready to make great sacrifices to secure contracts for somewhat extended periods. As regards the current prices of the moment, it is very difficult to define them, but it may be affirmed that the official quotations are to a great extent nominal. One industrialist is stated to have concluded contracts for the coal which he requires for his consumption during 1874 at 12s. per ton, as compared with 16s. 10d. per ton, the corresponding contract price agreed on a few months since. A notice from the Belgian Consul at Stockholm states that the Administration of Swedish Railways will receive next month tenders for 40,000 tons of coal for locomotives.

The new year has commenced very much as the old one ended. There is a continuation of the same tendencies and the same aspect of affairs. The future presents itself, however, quite otherwise as compared with the future which appeared to be opening out a year since; everything seems to confirm the probability of a fall in prices. In the basins of the Nord and the Pas-de-Calais coal has been recently disposed of with difficulty, while measures have been taken for considerably increasing the production in 1874, either by new arrangements in connection with old pits, or by the sinking of new pits, which will soon be ready for working. It is estimated that

the basins of the Nord and the Pas-de-Calais will easily produce at least 1,500,000 tons more in 1874 than in 1873. Thanks to new means of production, and thanks to greater facilities of communication, created by new railways in course of construction, the two basins of the Nord and the Pas-de-Calais will certainly acquire a considerable development. It may be added that, in order to attract and retain a working population the Courrières, Lens, Bally-Grenay, Neuix, Meurchin, Dourin, &c., companies have voted the necessary subsidies for building during the ensuing season more than 2000 houses for miners. The basin of the Ruhr is marching on with gigantic strides, and many abandoned workings have been resumed in Belgium, while others have been improved; the general tendency of production is thus in the direction of serious progress. The demand is almost nil as regards the metallurgical interest; it is far from brilliant as regards the glass works; and it is worse still as regards the sugar works, the condition of which leaves a good deal to be desired. The great French railway companies are stated to possess stocks equivalent to 60 days' consumption; several of these have concluded contracts for the whole year, and even for several years to come. At a meeting of a syndicate of sugar manufacturers in the department of the Aisne a proposal was made that the members of the syndicate should purchase their coal in common and upon certain determined conditions; but the general feeling was that for some months to come the best course to pursue would be not to purchase coal at all. There has been nothing particular to note in regard to prices, which have been to a great extent nominal, as there have been no very extensive contracts concluded.

FOREIGN MINES.

MINERAL HILL (Silver).—Extract from a letter received by the official liquidator from Mr. Oakes, superintendent of the mine, under date Dec. 29. The prospecting the Taylor tunnel and surface shaft got on without change to notice. The ore raised from the mines is as before, 40 tons, of an average grade of 550 per ton. Very little has been done at the waste dumps this week in consequence of the severe weather.

SIERRA BUTTES (Gold).—Result of the working at the Sierra Buttes and Plumas Eureka Mines for December—Sierra Buttes: Receipts, \$29,936; cost of mining and milling, \$15,612.—Plumas Eureka: Receipts, \$18,000; cost of mining and milling, no details.

BIRDSEY CREEK (Gold).—G. S. Powers, Dec. 28: I wrote you the 22nd inst., we then had about 600 in. of water in company's ditch, but it has been decreasing since until this morning, when it commenced running, and there is a good prospect now that it will continue for 34 hours, which I think will give us a full supply, or at least all the claims to-morrow (the 29th), when I hope we shall have no further delay on account of water.

HOLCOMBE VALLEY (Gold).—C. R. Bennett, Dec. 20: Since Mr. Haley's communication to you of the 13th inst. the air shaft in the 120 feet level west has reached the length of 16 ft., and showing a ledge from 10 in. to 1½ foot, with ore of a very fair quality and high grade. The work on the quartz mill is proceeding (notwithstanding the drawbacks of the late stormy weather we have experienced) very satisfactorily, the mortar being in its place, and framework erected. The weather seems more settled, and the snow gradually settling.

BLUE TENT CONSOLIDATED (Gold).—C. W. Tozer, Dec. 28: Since the date of my last report (18th inst.) nothing especially worthy of mention has occurred at the mine. I am again under the necessity of reporting that our washing season has not begun regularly, though, as before written, we have been able to turn on water for a few hours at a time, washing away the gravel point as rapidly as possible, thus to bring into early use our 6 ft. flume, already, as you are aware, laid through or under the point. All hydraulic mines in this region expect, and had good reason to expect, that they could begin the season's campaign by or before the time. Very much snow and rain have fallen (a total of 17 inches, I am told), but the weather being cold the ditches remain unfilled, and operations cannot be commenced. There is, however, this consolation—the rain and snow have fallen in such quantities that we feel certain of a long and prosperous water season, let it begin sooner or later. As a matter of fact, if we can be supplied with water for (say) eight months in the year it is better to begin later, because the water is worth more to us in the longer and warmer days of the spring and summer time than in the cold short days of winter. I look anxiously and hopefully forward to the time when our Granite Creek and French Cabin lakes are dammed. The Eorly Valley reservoir and our canal completed, we shall have water during the entire season, save, perhaps, a month or two of cold weather at the commencement of the winter, which time we shall occupy in placing the various washings in order for renewed attack. The Red Rock tunnel, in South Yuba claim, is still in very hard material, and will not advance much over 20 ft. for the month of December. Estimating the advance for December at 20 ft., there will still remain to complete the tunnel 71½ ft. We had calculated upon finishing the work on or before Feb. 1, 1874, but shall not be able to do so unless easier material is found to work through. Since commencing this letter (this morning, and it is now evening) the weather has very much moderated, and a warm rain has been falling, again encouraging us to think we may be able to begin washing at once.

I. X. L. (Gold and Silver).—Mr. L. Chalmers, Dec. 29: During past week (broken up by Christmas holidays)—we have driven both drifts to their junction 49 ft. from cross cut, but the junction has not made ore yet. This week I will push the driving north and south on the main lode. The main lode is full of quartz, and 3 ft. wide, a true fissure; we shall not run far before we have ore. I sacked last week a few loads for the first opportunity I got of sending to mill by Exchequer sleighs.

EXCHEQUER (Gold and Silver).—L. Chalmers, Dec. 29: During the past week (broken up by the holidays) we have driven the north drift from cross cut 7 ft., making now 212 ft. The tunnel, which is 3½ ft. wide, is entirely in lode, so that I do not yet know its width. There is some very good ore on the hanging wall side, which I shall take out this week. We have recommenced sinking the engine shaft, which is down 107 ft.; rock very hard. All my sacks are filled with ore, waiting the return of the sleighs for the mill. Levels on Basto's lode, in the 70, west of Taylor's, have been 14 ft. wide, composed of quartz and stones of lead. In the 160 west lode is worth 2 tons of ore per fathom. The lode in the 150 east is worth ½ ton per fathom of copper, mixed with cobalt. In the 140 west lode is 1 ft. wide, composed of quartz and country. In the 130, east of River shaft, the lode is 4 ft. wide, of quartz. The 120 east is unproductive. In the 110 the lode is 2½ ft. wide, yielding stones of ore. The lode in the 90 east is divided into two branches, which are poor. In the 80 the lode is of no value at present. In the 70 the lode is 2½ ft. wide, composed of quartz and stones of copper and lead. In the 70, west of Taylor's, and west of slide lode, the lode is 6 in. wide, of a dry flookan. At the 38, west of Perez' shaft, the lode is still worth 1 ton per fathom. The shaft in the 130, east of Taylor's, is 1 ft. wide, of schist. There is a change to notice in the cross cut south of the branch, west of Perez' shaft.—Carvalhal: In the 50, east of incline shaft, the lode is 1½ ft. wide, of quartz and stones of lead; this level has been resumed, seeing that we have some good lead in the bottom of the 40, about 6 metres east of us. The 40 east is suspended; the lode is nearly 1 ft. wide, but unproductive. The copper lode in the deep adit, west of River Caïma, is 6 to 8 in. wide, giving stones of mudié and spots of lead. In the top adit, driving south, east of River Caïma, the lode is 4 in. wide, of flookan. A winze is being sunk below the 40, east of incline shaft, on great lode, which yields 1½ ton of lead ore per fathom.

FORTUNA.—Jan. 14: The lode in the 110, west of Henty's shaft, is small, and of no value, and the ground hard for driving. The lode in the 100, west of Judd's shaft, is split into male, female, and a third, with no alteration in the 80. The 80 shaft, is regular, and contains good stones of ore, yielding ½ ton per fathom. In the 90, west of Lowndes' shaft, the lode is small and unproductive at present. The lode in the 90, east of Lowndes' shaft, is open, and of a promising appearance, and we expect it will improve shortly. The lode in the 80, east of Caro's shaft, has been broken by a strong cross-course, and is not yet re-formed.—Shafts and Winzes: The lode in Belmonte's winze, sinking below the 76, is small, and the ground hard and difficult to sink.—Los Salidos Mine: The lode in the 110, west of San Carlos shaft, has improved, and now opens good tribute ground, yielding 1½ ton of ore per fathom. In the 90, west of San Carlos shaft, the branch is very promising appearance, consisting of quartz, calcareous spar, and stones of ore. In the 110, east of Cox's shaft, there are some strong joints crossing the end, which have disarranged the lode. The lode in the 100, east of San Miguel's shaft, has been changed in the past fortnight, and is now again opening good ore, yielding 2 tons of ore per fathom. The lode is small and unproductive in the 35, west of Palgrave's engine-shaft. In the 45, west of Palgrave's engine-shaft, the lode is very compact and regular, and opening good ore ground, yielding 2 tons of ore per fathom. The lode in the 45, east of Palgrave's engine-shaft, is strong, and of a promising appearance, consisting of quartz, calcareous spar, and stones of ore. In the 110, east of Cox's shaft, there are some strong joints crossing the end, which have disarranged the lode. The lode in the 100, east of San Miguel's shaft, has been changed in the past fortnight, and is now again opening good ore, yielding 2 tons of ore per fathom. The lode is small and unproductive in the 35, west of Palgrave's engine-shaft. In the 45, west of Palgrave's engine-shaft, the lode is very compact and regular, and opening good ore ground, yielding 2 tons of ore per fathom. The lode in the 45, east of Palgrave's engine-shaft, is strong, and of a promising appearance, consisting of quartz, calcareous spar, and stones of ore. In the 110, east of Cox's shaft, there are some strong joints crossing the end, which have disarranged the lode. The lode in the 100, east of San Miguel's shaft, has been changed in the past fortnight, and is now again opening good ore, yielding 2 tons of ore per fathom. The lode is small and unproductive in the 35, west of Palgrave's engine-shaft. In the 45, west of Palgrave's engine-shaft, the lode is very compact and regular, and opening good ore ground, yielding 2 tons of ore per fathom. The lode in the 45, east of Palgrave's engine-shaft, is strong, and of a promising appearance, consisting of quartz, calcareous spar, and stones of ore.

stones of ore.—Shafts and Winzes: Swaffield's shaft, sinking below the 25, is going down in a good lode, yielding 2 tons of ore per fathom. The lode in Garriolos Mine, sinking below the 110, is very wide, and spotted with ore. Murcio's shaft, sinking below the 100, is holed to the 110; the lode produces 1 ton of ore per fathom. The lode in Morato's winze, sinking below the 90, has again improved, and is easier for sinking. The tribute department yielded the usual average quantity of ore in the past month, and the stopes are now looking moderately well. The works at surface are going on very regularly, and the machinery is in good working order. We estimate the raisings for January—five weeks—at 450 tons.

ALAMILLOS.—Jan. 14: The lode in the 60, west of San Rafael shaft, has a better appearance than for some time past, containing good stones of lead. In the 50, west of San Francisco shaft, the lode maintains its size, but has fallen off in value within the last few days. The lode in the 50, east of La Magdalena shaft, is small and poor, and the ground very hard for driving through. The lode in the 85, east of Taylor's engine-shaft, yields occasional stones of lead. In the 85, west of Taylor's engine-shaft, the lode is regular, but unproductive. The 50, east of San Victor's shaft, has gone through a strong cross-course, which has heaved the lode. The lode in the 50, west of San Victor's shaft, has improved very much, yielding ½ ton of ore per fathom some days ago, but has again failed. The 30, west of Adis's cross-cut, is opening out tribute ground, yielding ½ ton of ore per fathom. The lode in the 50, east of Judd's engine-shaft, is getting larger, but does not contain lead to value. The 60 cross-cut, south of Judd's engine-shaft, is being driven through very hard granite. There is no improvement in the 40, east of air shaft. The lode in the 30, east of air shaft, produces good stones of ore, yielding ½ ton of ore per fathom. The 50, east of Crosby's shaft, has holed to Molina's winze; the lode is unproductive. The lode in the 50, west of Crosby's cross-cut, continues regular, but is not so productive as it has been, yielding 1 ton of ore per fathom. In the 30, east of Swaffield's shaft, the lode is small and poor. —Shafts and Winzes: In Judd's engine-shaft, below the 60, the ground is very hard for sinking through. In San Carlos shaft, below the 30, there is rather more water, but the men are making good progress. The lode is small and poor in Caro's winze, below the 75. The lode continues poor in Alvarez' winze, sinking below the 75 fm. level.

LINARES.—Pozo Ancho, January 14: The lode in the 85, west of Crosby's shaft, is very open, and yielding stones of ore. The lode in the 75 fm. level, west of Crosby's shaft, has improved a little, yielding ½ ton of ore per fm. The 75, west of San Francisco shaft, is opening tribute ground, worth 1½ ton of ore per fathom. The lode in the 75, east of San Francisco shaft, is small, yielding ½ ton of ore per fathom, and the ground hard for driving. In the 65, west of San Francisco shaft, the lode is very regular, consisting of quartz and lead ore, yielding ¾ ton of the latter per fathom. In the 55, west of San Francisco shaft, the lode is small and poor. The lode in the 55, east of San Francisco shaft, is compact and regular, and of a promising appearance, producing 1 ton of ore per fm. —Shafts and Winzes: Warden's shaft, sinking below the 85, has been hindered a little owing to our stopping the engine to change two pieces of the main rod. No. 187 winze, sinking below the 55, is going down in a moderately productive lode. —Los Quiñentos Mine: In the 80, east and west of Taylor's engine-shaft, there is nothing as yet to value. The 65, west of Taylor's engine-shaft, has reached the south part of the lode, which consists of quartz and lead ore. The 55, west of Cox's shaft, is hard and poor at present. There is nothing to value in the 65, east of Taylor's engine-shaft. The lode in the 55, east of Adis's shaft, is large, and producing stones of lead ore. The 45, east of Adis's shaft, is holed. The 45 fathom level, west of San Carlos shaft, is communicated to the 45 fathom level east of Adis's shaft. The lode in the 55 fathom level, west of San Carlos shaft, is regular and well defined, consisting of calcareous spar and lead ore, yielding 3 tons of the latter per fathom. In the 65, west of San Carlos shaft, the lode is large, yielding fine lumps of lead ore, worth ¾ ton per fathom. The lode in the 65, east of San Carlos shaft, is split into two branches, both of which are producing ore, yielding 1 ton per fathom. The lode in the 65, east of San Carlos shaft, is a strong open one, of carbonate of lime and lead ore, yielding ½ ton of the latter per fathom. In the 45, east of Judd's shaft, the lode is small, but very regular and well defined, yielding ½ ton of ore per fathom. The 32, east of Judd's shaft, is suspended for the present, in consequence of having resumed the sinking of Judd's winze, there being no air to work. The lode produces 1 ton of ore per fathom. —Shafts and Winzes: Judd's shaft, sinking below the 45, is going down in a hard granite, off the lode. The lode in Julian's winze, sinking below the 45, is declining in size and value, yielding 2 tons of ore per fathom. Francisco's winze, sinking below the 55, is yielding stones of ore, but not enough to value. Jose's winze, below the 32, is still in old workings.

[For remainder of Foreign Mines see to-day's Journal.]

AUSTRALIAN MINES.

BREMER.—The directors have received advices, dated Dec. 3, from the colonial committee in South Australia, showing an improvement in the 103 fm. level, and better indications in the upper levels. Regular made in the month, 45 tons, of about 50 per cent.; and regulus sold, 45 tons, for 1826L. Cost-sheet, 13/6d. on ore account, 724L on capital account.

PORT PHILLIP AND COLONIAL GOLD.—The resident director (Clunes, Dec. 1) says—The quantity of quartz crushed during the month ending Nov. 5 was 4976 tons; pyrites treated, 26 tons; total gold obtained, 1118 ozs., or an average per ton of 4 dwts. 11 grs. The receipts were 4277L 17s. 10d.; payments (including 522L paid on account of the firewood contracts), 3880L 1s. 8d.; profit, 697L 16s. 21d., to which was added last month's balance of 711L 11s. 9d., making a total of 1409L 7s. 11d., which was carried forward to next month's account. During the three weeks ending Nov. 26 the quantity of quartz crushed was 3344 tons; pyrites treated, 27 tons; total gold obtained, 842 ozs. 3 dwts., or an average per ton of 5 dwts. ¾ gr.

ENGLISH AND AUSTRALIAN.—The manager (Port Adelaide, Dec. 5) says—There were three cargoes of coal afloat, with an aggregate of 1650 tons, besides the stock on hand. All the furnaces, both at Port Adelaide and Newcastle, were in full work. Since date of last advices about 386 tons copper had been shipped.

SCOTTISH AUSTRALIAN.—The directors have advices from Sydney dated Dec. 2, with reports from the Lambton Colliery to Nov. 26. The sales of coal from the beginning to Nov. 28 amounted to 12,642 tons. At Cadia the miners were continuing their operations, and had obtained altogether 89 ozs. of gold, including one nugget of about 39 ozs. About 39 tons of the stone crushed is estimated to have produced 1 oz. of gold to the ton of stone.

AUSTRALIAN CENTRAL.—Mr. Gill (Dec. 4) reports that he arrived in Victoria on Nov. 15, and that he anticipated no difficulty in obtaining possession of the property as soon as the Bank of Victoria was settled; but he adds, "As the winding engine is under repair I have not been able to personally inspect the underground workings at present. I have good reason to believe that they are in a very satisfactory condition. The mine is now so well drained that I do not anticipate any further accidents from water bursts, and so far as I can judge from previous tests as to the value of the wash dirt which can be got ready for blocking operations, the mine can be made a very fairly remunerative venture to the present shareholders."

Captain Angwin, whose services Mr. Gill retains, reports on Dec. 3 as follows:—"Concerning the machinery, there is a horizontal engine of 50-horse power for pumping and puddling in good order, also a portable engine of 10-horse power for winding purposes—now undergoing repairs. I would advise you to get another of greater power, as this (being too small) is not calculated to do the work. By so doing a great saving would be effected in wood and ropes. We should not require a boiler, as the one at the pumping engine would serve for both. There is winding gear on the ground. I am of opinion, taking everything into consideration—firewood, ropes, less engine-men, and sale of old engine—we should save the price of the new engine in less than twelve months. There are two iron-puddling machines, water tank, sluice boxes, and surface-plunger, all in good order. It would be wise to have additional length of sluice-boxes in thorough repair; it would be saving for gold, no doubt they will last many years. The underground workings are in good repair, and gutter thoroughly drained, which will enable us to work the ground a good deal better and cheaper. I have no doubt in driving north we shall meet with more tributaries. I consider the prospects of the mine are good, and there shall be no exertion wanting on my part to make it payable."

ANGLO-AUSTRALIAN.—Captain Raisbeck, Fryerstown, Dec. 3: "I have the honour to report progress since the 5th ult. Since that date we have not done any permanent work underground, merely a little timber work and pumping the water, which is absolutely necessary. We have also effected some little repairs connected with the engine—repairing valves, chipping brasses, which were required.—Prospecting Shaft: Tributaries crushed for the month 21 tons, of 5 ozs. and 45 tons for 42 ozs. gold. They have driven south 52 ft., being within 5 ft. of ground. They have also driven 52 ft. north. Reef is stronger in this drive; good payable stone in both. We should have two shafts sinking as soon as possible for the same run of stone, one south and one north of their present workings.—Tributers Smithy Shaft: There has been crushed for the month 6 tons; the result has been 1 oz. 8 dwts. We continue breaking quartz. No apparent change in stone. The prospects in your mine have never been so good, or of such a permanent character, as at present. Should the works be carried out as intended I have no doubt you will have a good dividend-paying mine. As to our present mode of working, we are losing both time and money." Mr. Clark, in forwarding the above report, adds:—"The proprietors of the adjoining claim (Ferryman and Co.) have started to sink a shaft this week about 150 ft. from your southern boundary, in consequence of the out turn from your prospecting shaft."

NEW ZEALAND KAPANGA (Gold).—Capt. Thomas, Nov. 15: Since forwarding my last communication, of Oct. 21, I am pleased to inform you the progress made since erecting the various works has been most satisfactory. During the past month all the mason's work belonging to the engine-house has been completed, comprising the strong concrete loading foundations before explained. This work has consumed some 700 to 800 tons of stone, which had to be carried from the creeks and built in position, which now forms a most substantial foundation for this powerful winding engine. The beam has been hoisted into its final position in the bow end of the engine-house, and the cylinder will be hoisted in its position in the course of a few days. You thus observe we have now all the heavy, expensive, and most cumbersome portion of the machinery fixed, also the heaviest part of the other work required completed. After the engineers have fixed and bolted the cylinder in position they will proceed with connecting the other portions of the machinery as fast as possible. The carpenters are busily engaged sawing timber with the circular saw for roofing and weather boarding the engine and boiler houses, and making strong frame woodwork for carrying winding gear, balance-bob, and sundry other work. I hope we shall be ready to build in the boilers about the end of this month. I have contracted to have an iron chimney rivetted together in sections of five 12-ft. lengths, instead of building a brick stack, which would come much more expensive. On completion and delivery of this chimney I will let you know the difference sooner. The sawyers in the bush are engaged cutting the timber for main-roads, balance-bobs, and scantlings suitable for our circular-saw work. The smiths are engaged keeping the engineers supplied with numerous smithwork consequently required for the erections. The rapid progress with which these heavy works have so far been completed and finished has exceeded my anticipations. I have had many great difficulties to overcome in various ways in performing this work, with few conveniences obtainable in a new country like this, and I am pleased to say the work is now at an end. In my next I hope I shall be able to let you know about the time the engine and pitwork will be ready for permanent working, and when the shaft-sinking will again be resumed. My constant attention is being directed on all points of the operations, economising and pushing on the works with as much dispatch as the nature of such heavy work will permit.

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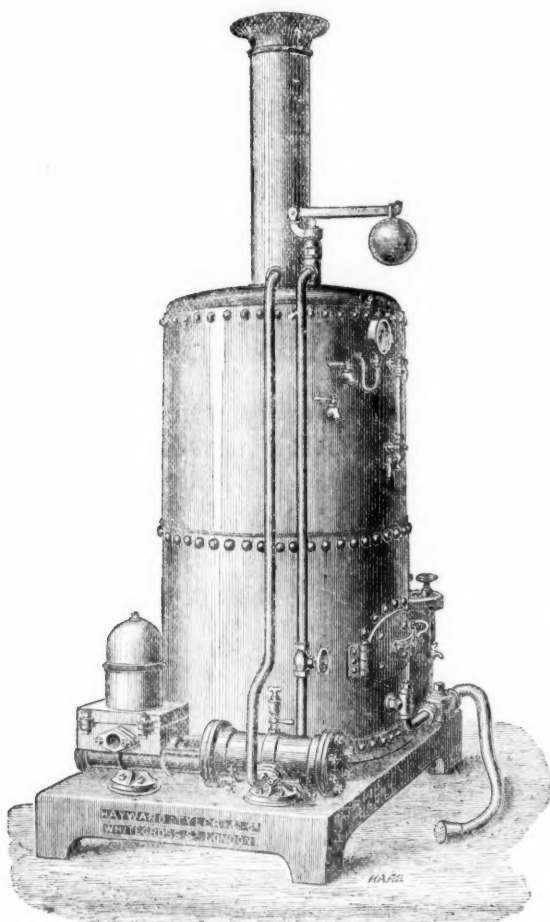
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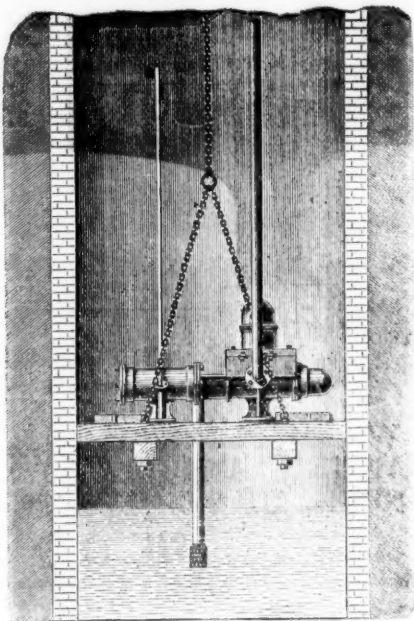
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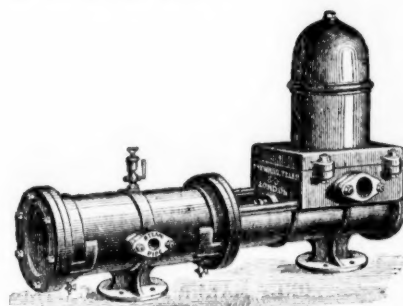
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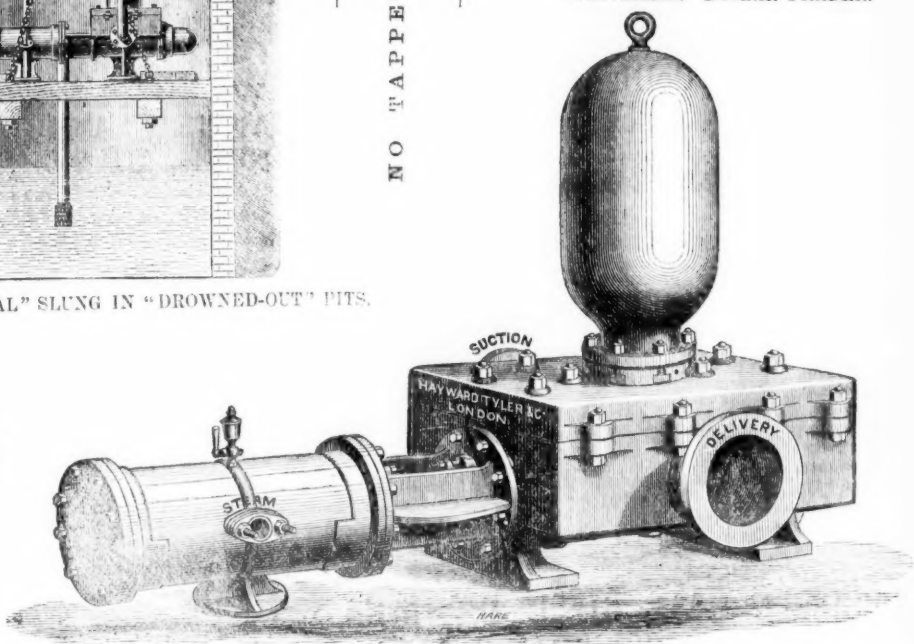
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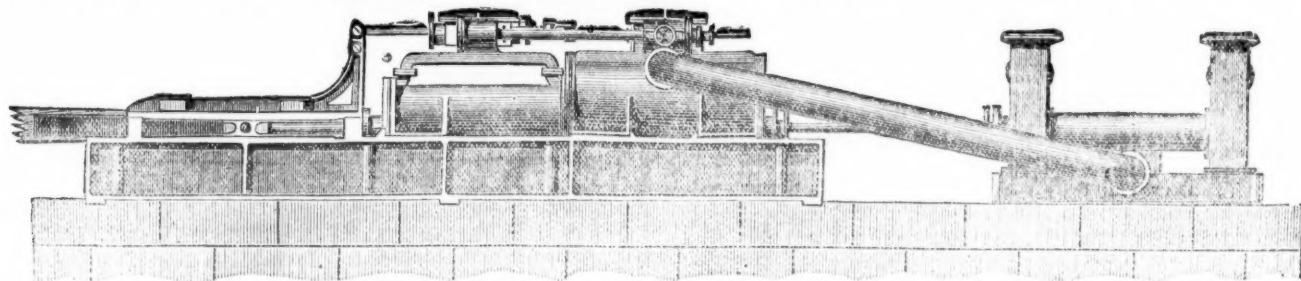


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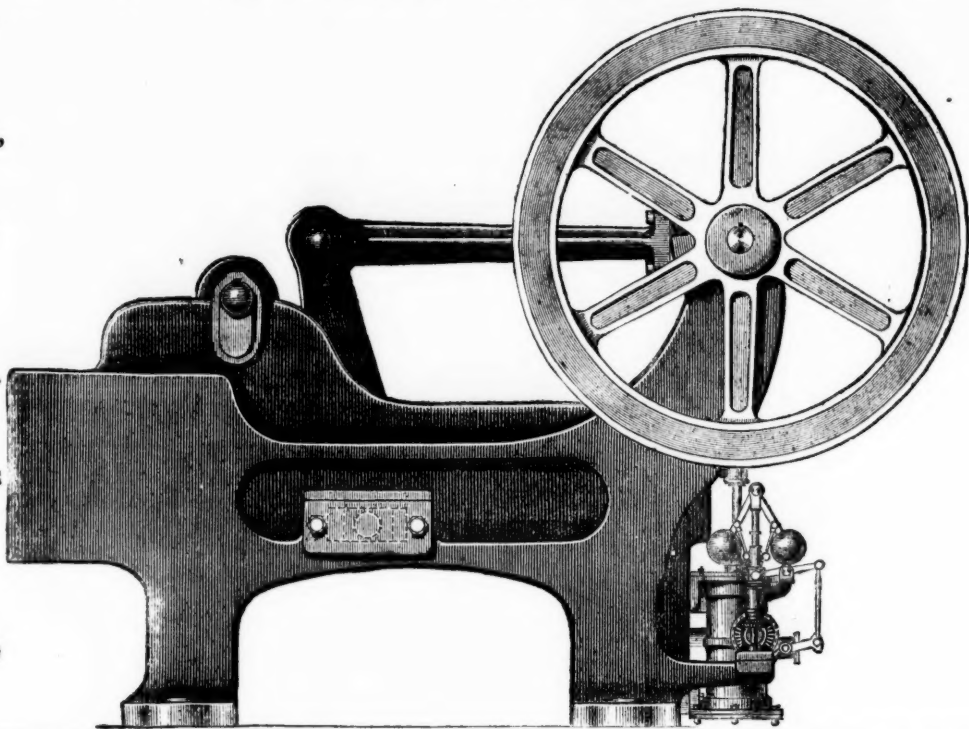
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